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Contents

January 1984 Volume VII, Number 10

ABOUT THE COVER
And they're off! The videophile-favorite LV videodisc system is coming on strong with a new player using a solid-state laser, but CED is coming round the bend with its first random-access player. Who'll win? Cover photo by Steve Strauss/Focus on Sports.

66
LaserVision: The Next Generation
by Lancelot Braithwaite
It's slim, it's trim, it's solid-state—it's the new wave of videodisc players.

68
Zenith's Ultimate Video Switch
by Roderick Woodcock
Zenith switches to VHS and our Sonyphile Senior Editor takes a hard look at Beta's mistakes.

73
VHS Breaks The Sound Barrier
by Peter Daniels
The VHS camp gets set to follow Beta Hi-Fi into the realm of VCR high fidelity.

76
1984 on Video
by Beverley Bare Buehrer
Past imperfect, future tense: an examination of 'future films' on cassette and disc.

80
Mic'ing and Other Sound Practices
by John Bishop
Think of microphones as video lenses for the ears—and then learn how to use 'em right.

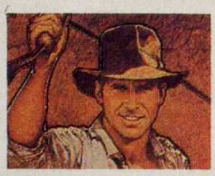
Page 85

85
The 8mm Question
by Murray Slovick
With Beta and VHS innovations aplenty, why do we need a whole new videotape format?

88
One-Man Shows
by Michael Musto
A one-on-one look at the kind of performer who can dominate the screen as a solo artist.

Page 88

Program Guide



News & Views 49
Top 10 Programs 51
Directory of New Programs 52
Reviews: Film & Video Clips 60

Videotests

by Berger-Braithwaite Labs 91
RCA SJT 400 Random-Access CED
Sony CCD-G5 Solid-State Camera
Magnavox VR8440BK01 VHS VCR
Magnavox VR8280BK01 Deluxe Camera

Columns

Fast Forward 6
New Column: Late-Breaking News
Channel One 8
Under New Management
Feedback 12
We, the Cable Subscribers
New Products 16
The Latest in Equipment
Fine Tuning 20
Using the Right Set of Heads
Computer Ease 24
Evaluating Radio Shack's Latest
Videogram 26
Hot New Sidemen: Drum Machines
TV Den 28
Shooting the Screen
New Channels 32
The Electronic Magazine
Arcade Alley 40
Annual Arcade Awards, Part 1
Off the Air 44
New Column: Ex-Editor Speaks Out
Video Bookshelf 148
New Efforts by the Usual Suspects

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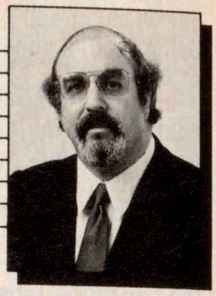
Computer Ease

The Human Interface



by Ivan Berger

Evaluating Radio Shack's Latest and Greatest

Radio Shack's TRS-80 Model IV has multiple personalities. In a person, that would spell trouble. In a computer, it's a definite plus.

The Model IV replaces the TRS-80 Model III. And its first personality—in fact, the only one if you get it without disk drives—is identical to the III's.

Like the III, the IV has a 12-inch black-and-white monitor screen to the left, above the keyboard, and slots for two disk drives on the right, above a numeric keypad. It has a Z80 processor. It can display 16 lines of 64 characters on-screen, or blocky graphics consisting of 48 by 128 "pixels" (picture elements); those pixels can be controlled individually or as graphics "characters" 3 pixels high by 2 wide. The IV has a built-in Centronics-type parallel printer port, a dual-speed (500- or 1500-baud) cassette I/O port, and room for the RS-232 serial port.

The Model IV is said to run all Model III cassette software at either loading speed, and all Model III disk software too. I didn't do much experimenting with application software, but did try several Model III disk-operating systems on the Model IV—TRSDOS 1.1 and 1.3, TDOS (an abbreviated DOSPLUS 3.4), NEWDOS/80, and the custom operating system of Super Utility Plus. All but TRSDOS 1.1 (a long-discontinued system issued only for a short time) ran OK. (I'm told that TRSDOS 1.2 will not work on this computer either.)

The differences between the Models III and IV are subtle. The IV's case has a matte white finish that's molded in, replacing the easily scratched silver-grey paint on prior models (however, I prefer the smoother feel of the silver models). Its keyboard has several keys in white that the Model III had in black (the cursor arrows, BREAK, CLEAR, and SHIFT), and several new keys that the Model III did not have at all: CAPS, CTRL, and three programmable function keys (F1, F2, and F3).

Radio Shack's TRSDOS 6.0 disk brings out the beast in its Model IV computer, commanding up to 128K and giving users more flexibility when constructing programs.

The CAPS key works something like a typewriter shift lock except that it shifts only letters of the alphabet and leaves other keys alone, so you don't accidentally get a "%" when you want a "5." This key works in both TRSDOS 1.3 and BASIC, but not in SCRIPSIT. The CTRL key lets you enter special control characters such as control-H (backspace). I found several of these characters also worked with Model III TRSDOS and BASIC, though most of their functions could be duplicated by other keys already on the board. In BASIC, the three function keys also either duplicated existing functions or did nothing, though enough information is given in the Model IV manual to let programmers take advantage of them.

So far, then, the IV seems like a faintly revamped III with a prettier case, a clearer (and slightly quieter) keyboard, and a few extra keys of so far limited utility. Its chief virtue, then, seems to be that it costs less than the Model III: $1999 complete with two double-density disk drives, the RS-232 port, and 64K of RAM memory.

But that 64K of RAM is arranged differently. The Model III was limited to 48K, since its first 16K of memory-address space was occupied by the ROM operating system, the keyboard, and the video display. Yet slip in the disk containing the Model IV's own DOS (TRSDOS 6.0, a derivative of Logical Systems' LDOS 5.1, which Radio Shack now sells) and it becomes a different beast, able to use the whole 64K—and an optional 64K more, for a total of 128K (though only some programs can use this extra RAM). The computer's whole logical structure changes, with the keyboard and video memory bowing out of the processor's memory-address space—there are other ways to treat them—and the ROM bowing out as soon as it ascertains that it's loading a Model IV disk.

That doesn't always mean more memory available to the user. Parts of the operating system and BASIC that

Ivan Berger is technical editor of Audio Magazine.

were part of ROM on the III are now loaded into RAM from disk, and parts of BASIC (and possibly DOS) that were loaded into RAM before are now more elaborate. As a result, the IV has about 8K bytes less in BASIC than in Model III mode—but in SCRIPSIT (the word processor with which I'm writing this) it offers about 8K bytes more. As these examples hint, this difference in architecture lets memory space be used more flexibly, giving programmers more leeway in constructing programs.

Not only that, but the screen reformats itself to display 24 lines of 80 characters or 72 by 160 graphics pixels. This nearly doubles the amount of information available on-screen, from 1024 characters (about 170 words) in Model III mode to 1920 (about 320 words), and makes the graphics noticeably less blocky. According to Radio Shack, the display's resolution has been increased to permit this. I couldn't tell because my sample was slightly out of focus at the center of the screen; but this difference probably accounts for the difference in price between the Model IV ($249.95) and III ($369.95) versions of their Hi-Res Graphics option, which increases graphics resolution to 240 by 640 pixels.

Both the revised memory map and 24-by-80 display help the Model IV adopt its third "personality" in the form of the CP/M operating system ($149.95 extra). This system is far less user-friendly than TRSDOS or LDOS, but its design makes it easily adaptable to different computers, which has caused many computer makers to adopt it. As a consequence thousands of fine programs using the CP/M operating system are available. Many of these also require the CBASIC compiler; Radio Shack offers that too, for $99.95. Add this to the thousands of Model III programs that the IV can already use, and the ones yet to be written specifically for the Model IV, and the selection of software is vast.

The Software written specifically for the Model IV's own TRSDOS 6.0 operating system, though, is limited. A few programs such as Target PlannerCalc ($99.95) and Multiplan ($199) are available only in this version. The rest largely consist of programs available for the Model III, but revised to take advantage of Model IV features.

I tried one of these, the Model IV version of SCRIPSIT ($199.95), and found it eliminated the original version's two most annoying bugs: initializing in upper-case-only mode, and bombing if you accidentally press control-T. It also used the III's CAPS key and could output to a printer some characters (such as brackets, braces, and accents) not on the keyboard. Others available in the special Model IV version include PFS-File ($124.95), SuperSCRIPSIT ($199, adding reverse video to the Model III version's editing features), Enhanced VisiCalc ($249.95), and Alcor Pascal ($249.95). The 24-by-80 screen feature should prove especially handy with the Visicalc, Multiplan, and Target spreadsheet programs.

Unfortunately, you cannot simply convert Model III programs to run in Model IV mode. The exceptions are BASIC programs saved as ASCII files, but not all such programs work without revisions. The manual includes three pages on that, though alas it refers you to another manual (not provided) for some required information. You can also convert data files. All this notwithstanding, the Model IV can still run all these programs in its Model III mode—for once, Radio Shack has not cold-shouldered the owners of its previous models. In fact, you can even exchange files using the portable Model 100.

For graphics and games, the Model IV is outclassed by color computers (including Radio Shack's own) at far lower prices. But it's a fine machine for business and programming, with a raft of available programs and still more due soon, now that its CP/M operating system is out.

For additional information, circle No. 94 on Reader Service Card.

Arcade Alley

A Critical Look at Video Games

by Bill Kunkel & Arnie Katz

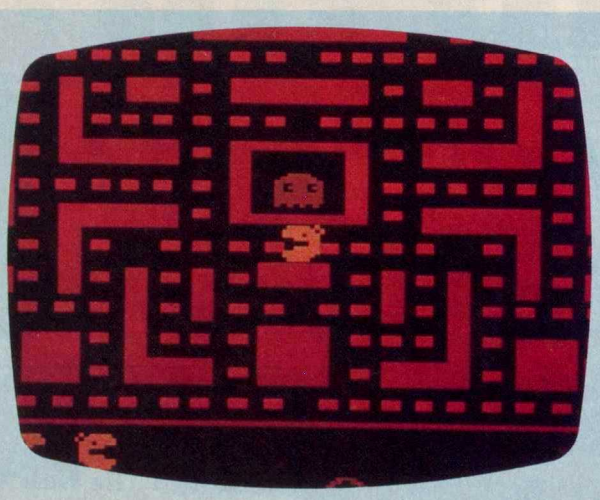
The Arcade Awards, Part 1

Reese Communications began sponsoring the Arcade Awards five years ago, and this column announced the first slate of winners. The idea was to promote the publication of top-quality games by praising the *creme de la creme*.

Electronic games have improved dramatically since then, and though this can't all be attributed to the beneficent influence of the Arkies, competition for this prestigious set of awards has helped spur publishers and designers alike to ever-greater efforts.

In this month's and next month's "Arcade Alley" we salute the winners of the 1984 Arcade Awards in the Videogame, Videogame/Computer Game, and Computer Game divisions. These are the top choices of the more than 5,000 players coast to coast who participated in the balloting.

☐ **1984 Electronic Game of the Year: Miner 2049er** (Big Five/Atari 5200/Atari computers; Micro Fun/Apple/ColecoVision; Tiger/Atari 2600). The Judging Committee created this "super Arkie" in response to unprecedented public demand: no home-arcade title has had the impact of this multi-screen climbing game. "Miner" is available on so many systems that it's become the most widely played home electronic game of all time. Bill Hogue's 10-screen classic casts the player as Bounty Bob. He must fully search each playfield, avoiding deadly mutants and leaping chasms. Each playfield is characterized by a unique set of challenges, climaxing in a wild scene in which the player fires Bounty Bob to the top of the screen like a human cannonball!



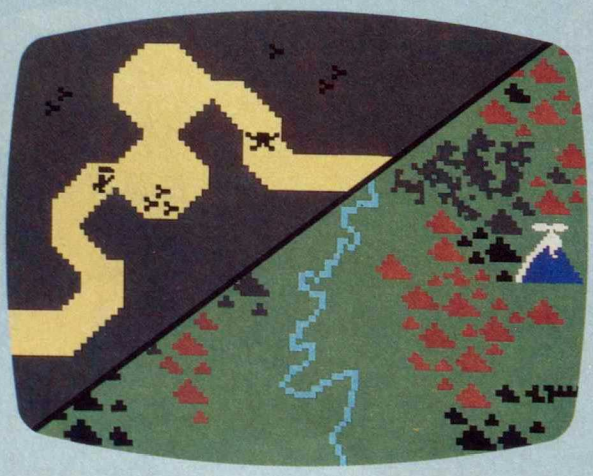
Top-notch visuals and the sultry appeal of the lady herself make 'Ms. Pac-Man' as fun to watch as it is to play.

☐ **1984 Videogame of the Year (Less than 16K ROM): Ms. Pac-Man** (Atari/Atari 2600). Atari displayed plenty of courage—not to mention faith in its designers—by producing this cartridge after last year's 2600 "Pac-Man" debacle. But as Ms. P. says in the commercials, this multi-screen maze-chase is much, much more than just "Pac-Man with a bow." "Ms. Pac-Man" 's graphics are so good for a 2600 cartridge that it was bound to receive plenty of attention from gamers. What makes it truly great, however, is how the visuals integrate into the play-action. Excellent joystick response and individualized bonus objects are just two of the reasons this one is a winner.

Certificates of Merit: "Burger Time" (Mattel/Intellivision); "Dracula" (Imagic/Intellivision); "Keystone Capers" (Activision/Atari 2600).

☐ **1984 Videogame of the Year (16K or more ROM): Lady Bug** (Coleco/ColecoVision). Pinball-type scoring blends with innovative maze-chase playmechanics in this outstanding home edition of a coin-op-palace cult favorite. Though it's in the same genre as "Pac-Man," "Lady Bug" offers unique challenges and the opportunity to exercise strategy as well as deft joystick work. It's the movable walls that make "Lady Bug" fascinating. Bumping into one of the turnstiles can instantly alter the design of the labyrinth, throwing pursuers off the trail and setting up prime scoring opportunities.

Certificates of Merit: "Spinball"



In 'Advanced Dungeons & Dragons Cloudy Mountain,' adventurers travel the wild (bottom right) and search for treasure and monsters to kill in underground labyrinths (top left).

(GCE/Vectrex); "Zaxxon" (Coleco/ColecoVision).

☐ **1984 Best Science Fiction/Fantasy Videogame: Vanguard** (Atari/Atari 5200). What's next? *That* is the key ingredient in the success of "Vanguard," a scrolling shootout extravaganza. Whether it's the coin-op or any of the excellent home editions produced by Atari, players can't resist the opportunity to steer their ship through the zones toward the final confrontation with the Gond. This mono-directional scroller has done well as a 2600 cartridge too, but it's the 5200 version with its outstanding graphics that has won gamers' hearts.

Certificates of Merit: "Phoenix" (Atari/Atari 2600); "Moon Patrol" (Atari/Atari 2600).

☐ **1984 Best Videogame Audio-Visual Effects (Less than 16K ROM): Dolphin** (Activision/Atari 2600). Matt Hubbard's game requires that players use their ears as well as their eyes. The Dolphin must swim through gaps in the vertical columns of sea horses, a feat made possible by the aquatic mammal's sonar. Sonar also helps the Dolphin get more energy. When the player hears the special "ping" that signals the flight of a seagull overheard, it's time to head for the surface—and lunch.

Certificates of Merit: "B-17 Bomber" (Mattel/Intellivision); "Dragonfire" (Imagic/Intellivision).

☐ **1984 Best Videogame Audio-Visual Effects (16K or more ROM): Donkey Kong Jr.** (ColecoVision). Sometimes sequels *do* manage to maintain the standards set by the original. "Donkey Kong Jr." is a fine example: this is no rehash of "Donkey Kong." Rather, it extends the theme and presents a radically different play-action. ColecoVision's cartridge is an accurate translation of the Nintendo coin-op, chronicling the efforts of Donkey Kong's son to find and free his daddy from a cage in the heart of the jungle by overcoming an assortment of enemies and obstacles. It's great fun.

Certificate of Merit: "Qix" (Atari/Atari 5200).

☐ **1984 Best Action Videogame: River Raid** (Activision/Atari 2600). Carol Shaw's cartridge lets the arcader grip the throttle of a fighter plane for a mission deep in hostile territory. The object is to follow the course of the mighty river that dominates the playfield and blast every opposing ship, plane, and tank in the vicinity. As the vertically-scrolling playfield unreels the jet jockey faces a limitless succession of dangers. "River Raid" provides the brand of non-stop excitement that blast brigaders adore.

Certificates of Merit: "MegaForce" (Fox Video Games/Atari 2600); "Polaris" (Tiger/Atari 2600); "Super Cobra" (Parker Brothers/Atari 2600).

☐ **1984 Best Adventure Videogame: Advanced Dungeons & Dragons** (Mattel/Intellivision). This is the first videogame version of the role-playing game that has entertained millions for many years. In command of a three-man team of explorers, the player moves the adventurers across the terrain until they reach a cave entrance, and then it's into the underground maze to fight monsters and collect treasure.

Certificates of Merit: "Jungle Hunt" (Atari/Atari 2600); "Tutenkham" (Parker Brothers/Atari 2600).

☐ **1984 Best Sports Videogame: Enduro** (Activision/Atari 2600). This new multi-phase racing game features some of the best graphics presented by a 2600 and boasts an intriguing concept. Not one of those auto games where the whole object is to stay on the road and drive as far as possible, "Enduro" 's goal is the same as in authentic racing: to roar past the checkered flag ahead of the pack.

Certificates of Merit: "RealSports Baseball" (Atari/Atari 2600); "RealSports Football" (Atari/Atari 2600).

Let's have a big hand for the victors, and be here in 30 days for our analysis of Arkie-winning computer games. V

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